

CLAIMS

1. A hole-forming pin for inserting indwelling needle comprising;
a column-shaped insertion part having a curved surface at the distal end thereof,
an insertion stop part provided at the proximal end of the insertion part, and
wings connected to the insertion stop part :
the insertion stop part and the wings are connected through elastic joint parts; said pin can form an hole for inserting an indwelling needle for holding an indwelling needle from a skin surface to a blood vessel.
2. A hole-forming pin for inserting indwelling needle according to Claim 1, wherein the insertion part is from 0.5 to 3.0 mm in outer diameter and is from 3 to 20 mm in length.
3. A hole-forming pin for inserting indwelling needle according to Claim 1 or 2, wherein elastic deformation at the elastic joint parts is such that the entire wings can be moved in the direction of right angle cross-section which is substantially at a right angle to blood flow direction of the blood vessel to which the column-shaped insertion part is to be inserted with respect to the insertion stop part.
4. A hole-forming pin for inserting indwelling needle according to any one of Claims 1 to 3, wherein the elastic deformation at the elastic joint parts allows the column-shaped insertion part to have flexibility in puncturing angle to the blood vessel with respect to the wings, the column-shaped insertion part is to be inserted through the blood vessel.
5. A hole-forming pin for inserting indwelling needle according to any one of

Claims 1 to 3, wherein the elastic deformation at the elastic joint parts allows the column-shaped insertion part of the insertion stop part to have angular flexibility substantially in the rotating direction about the axis of the column-shaped part of the column-shaped insertion part with respect to the wings.

6. A hole-forming pin for inserting indwelling needle according to any one of Claims 1 to 3, wherein the elastic deformation at the elastic joint parts is set based on the material and the shape of the elastic joint parts so that the balance with the elastic deformation for allowing the column-shaped insertion part to have flexibility in the puncturing angle to the blood vessel with respect to the wings according to Claim 4 and the elastic deformation for allowing the column-shaped insertion part at the insertion stop part to have angular flexibility substantially in the rotating direction about the axis of the column-shaped part of the column-shaped insertion part with respect to the wings according to Claim 5 are adjusted.

7. A hole-forming pin for inserting indwelling needle according to Claim 6, wherein the wings are connected to the insertion stop part via flexible joint branches.

8. A hole-forming pin for inserting indwelling needle according to Claim 7, wherein the joint branches are from 0.1 to 2 mm in diameter of the lateral cross-section, and 0.5 to 10 mm in length.

9. A jig for installing a pin for forming a hole for inserting indwelling needle comprising a main body and a sliding body that is built in the main body for sliding in the longitudinal direction of the main body; the supporting means supporting the pin for forming a hole for inserting indwelling needle for holding the indwelling needle from the

skin surface toward the blood vessel are provided at the distal end(s) of the main body and/or the sliding body: the jig is for holding a indwelling needle from a skin surface toward a blood vessel.

10. A jig for installing a pin for forming a hole for inserting indwelling needle according to Claim 9, wherein the main body is integrally formed with two opposing side plates extending in parallel with each other,

the sliding body is fitted between the two side plates,

a guide engages the inner walls of the two side plates which constitute the main body and the outer wall which constitutes the sliding body, and

the sliding body can slide forwardly of the main body by forming the guide.

11. A jig for installing a pin for forming a hole for inserting indwelling needle according to Claim 9, wherein the sliding body slidably inserted into a sliding shaft projecting from the distal end of the main body,

the two spring parts bending in the outward direction of the main body and the sliding body ,

two spring parts are fixed at the ends thereof to the left and right side walls of the main body and the left and right side walls of the sliding body respectively.

12. A jig for installing a pin for forming a hole for inserting indwelling needle according to any one of Claims 9 to 11, wherein the sliding body is provided with driving means that allows the sliding body to slide along the main body.

13. A jig for installing a pin for forming a hole for inserting indwelling needle according to Claim 12, wherein the driving means used for the sliding body is using a

finger stop part formed on a part of the sliding body.

14. A jig for installing a pin for forming a hole for inserting indwelling needle according to Claim 12, wherein the driving means for the sliding body comprises the finger stop part and the spring; the driving means for the sliding body is built in the tubular main body formed of left and right side walls, a bottom plate, a top plate and a rear end wall; a coil spring is fitted between the interior of the rear end wall of the main body and the rear end of the sliding body so that the sliding body is energized forward; an upper part of the sliding body is formed with inclined plane facing a forwardly; an inclined plane facing rearwardly corresponding to said inclined plane is formed on the lower part of the finger stop part, and the upper part of the finger hook part projects above the main body through a through-hole formed on the top plate of the main body.

15. A jig for installing a pin for forming a hole for inserting indwelling needle according to any one of Claims 9 to 14, wherein at least one part of the supporting means for supporting the indwelling needle insertion hole-forming pin is retracted relatively rearward of the distal end of the main body in association with the sliding movement and the indwelling needle insertion hole-forming pin is separated from the supporting means.

16. A jig for installing a pin for forming a hole for inserting indwelling needle according to any one of Claims 9 to 15, comprising wing holding means for holding the wings of the indwelling needle insertion hole-forming pin at the distal end of the main body and/or the distal end of the sliding body.